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1-25. (CANCELED)

26. (CURRENTLY AMENDED) A device for generating a thermal flux with magneto-caloric material, the device comprising at least one thermal flux generation unit (10, 30) provided with at least two thermal bodies (11, 21, 31, 41a, 41b), each containing at least one magneto-caloric element (12, 22, 32), magnetic means (103, 203, 303, 403) being arranged for emitting at least one magnetic field, displacement means coupled to the magnetic means (103, 203, 303, 403) for moving the magnetic means (103, 203, 303, 403) relative to the magneto-caloric elements (12, 22, 32) to subject the magneto-caloric elements (12, 22, 32) to a magnetic field variation to vary a temperature the magneto-caloric elements (12, 22, 32), and a recuperation means for recuperating at least one of calories and frigories that are emitted by the magneto-caloric elements (12, 22, 32), the displacement means reciprocating and being arranged for moving the magnetic means (103, 203, 303, 403) relative to the magneto-caloric elements (12, 22, 32) in a reciprocating motion;

the recuperation means comprises at least two heat transfer fluid circuits (410a, 410b), circulating means (411a, 411b) for circulating heat transfer fluid in [[the]] <u>each</u> fluid circuit (410a, 410b) and extraction means (413a, 413b) for extracting the calories and frigories recovered by the heat transfer fluid, [[the]] <u>each</u> fluid circuit (410a, 410b) comprises at least two transfer zones (14) each of which are located immediately adjacent to one of the magneto-caloric elements (12, 22, 32) and arranged so that the heat transfer fluid at least partially recovers the calories and frigories emitted by the corresponding magneto-caloric element (12, 22, 32); and

at least one of the at least two circuits (410a, 410b) being a hot circuit (410a) for the calories and at least one of the at least two circuits (410a, 410b) being a cold circuit (410b) for the frigories, and a commutation means (412) for connecting each of the at least two transfer zones (14) in alternation to one of the at least two circuits (410a, 410b), and a synchronization means for synchronizing the reciprocating displacement means with the commutation means (412) such that, depending on the magnetic field to which each magneto-caloric element (12, 22, 32) is subjected, the

corresponding transfer zone (14) ~~being~~ is alternately connected to one or other of the at least two circuits (410a, 410b).

27. (PREVIOUSLY PRESENTED) The device according to claim 26, wherein the reciprocating motion of the magnetic means (103, 203, 303, 403) is at least one of a pivoting motion and a translation motion.

28. (PREVIOUSLY PRESENTED) The device according to claim 26, wherein the recuperation means comprises a reversing means for reversing a circulation direction of the heat transfer fluid in the at least two heat transfer fluid circuits (410a, 410b).

29. (PREVIOUSLY PRESENTED) The device according to claim 26, wherein the magneto-caloric elements (12, 22, 32) comprise at least one magneto-caloric material selected from the group consisting of gadolinium (Gd), a gadolinium alloy containing at least one material chosen from the group consisting of silicon (Si), germanium (Ge), iron (Fe), magnesium (Mg), phosphorus (P) and arsenic (As), the magneto-caloric material is selected from the group consisting of a block, a pastille, a powder or an agglomerate of pieces.

30. (PREVIOUSLY PRESENTED) The device according to claim 26, wherein each thermal body (11, 21, 31, 41a, 41b) is at least partially made from a conductive material having good thermal conductivity and chosen from a group consisting of at least copper, a copper alloy, aluminum, an aluminum alloy, steel, a steel alloy, stainless metal and a stainless metal alloy.

31. (PREVIOUSLY PRESENTED) The device according to claim 26, wherein each thermal body (11, 21, 31, 41a, 41b) comprises at least one through-channel having at least one inlet orifice (16) and at least one outlet orifice (17), the at least one through-channel is connected to the circuit (410a, 410b), and the through-channel constitutes the corresponding transfer zone (14).

32. (PREVIOUSLY PRESENTED) The device according to claim 26, wherein the thermal body (11, 21, 31, 41a, 41b) comprises a single through-channel provided with a single inlet orifice (16) and a single outlet orifice (17) connected to the circuit (410a, 410b), and the through-channel constitutes the corresponding transfer zone (14).

33. (PREVIOUSLY PRESENTED) The device according to claim 26, wherein the magnetic means (103, 203, 303, 403) comprise at least one magnetic element which has one of a permanent magnet, an electromagnet and a superconductor.

34. (PREVIOUSLY PRESENTED) The device according to claim 33, wherein the magnetic element (103, 203, 303, 404) comprises at least one magnetizable material arranged to concentrate and direct magnetic field lines of the permanent magnet, and the magnetizable material comprising at least one of iron (Fe), cobalt (Co), vanadium (V), and a soft iron.

35. (PREVIOUSLY PRESENTED) The device according to claim 33, wherein the magnetic means (103, 203, 303, 403) has one of a U-shape or a C-shape and is arranged to receive the magneto-caloric element (12, 22, 32) between opposed arms thereof and in alternation.

36. (PREVIOUSLY PRESENTED) The device according to claim 33, wherein the at least two thermal bodies (11, 21, 31, 41a, 41b) are independent and are separated by at least one thermally insulating element, which includes at least one of a space and an insulating material.

37. (PREVIOUSLY PRESENTED) The device according to claim 35, wherein the device comprises a plurality of magnetic means (103, 203, 303, 403) carried by at least one support (104, 304) coupled to the reciprocating displacement means.

38. (PREVIOUSLY PRESENTED) The device according to claim 37, wherein the at least one support is essentially circular and constitutes at least one ring (104) and pivots in reciprocation about an axis, the ring carrying the magnetic means (103, 203) radially, and the thermal bodies (11, 21) define circular sectors that are sequentially arranged essentially in a circle and are freely straddled by the magnetic means (103, 203).

39. (PREVIOUSLY PRESENTED) The device according to claim 38, wherein the magnetic means (103) are orientated such that gaps of the U-shaped or the C-shaped magnetic means are essentially parallel to the ring (104), and the thermal bodies (11) are orientated essentially parallel to the pivoting axis of the ring (104).

40. (PREVIOUSLY PRESENTED) The device according to claim 38, wherein the magnetic means (203) are orientated such that gaps of the U-shaped or the C-

shaped magnetic means are essentially perpendicular to the pivoting axis of the ring (204), and the thermal bodies (21) are orientated essentially perpendicularly to the pivoting axis of the ring (204).

41. (PREVIOUSLY PRESENTED) The device according to claim 37, wherein the support is essentially rectilinear and defines at least one bar (304) that moves in a reciprocating rectilinear translation, the bar (304) carries the magnetic means (303), and the thermal bodies (31) are carried by at least one frame (306) positioned around the bar (304) and are arranged essentially in line so that the thermal bodies (31) are straddled freely by the magnetic means (303).

42. (PREVIOUSLY PRESENTED) The device according to claim 41, wherein the magnetic means (303) are positioned in a staggered arrangement on either side of the bar (304) forming two rows, and the frame (306) comprises two series of thermal bodies (31) each of which corresponds to the magnetic means (303) of one of the two rows.

43. (PREVIOUSLY PRESENTED) The device according to claim 26, wherein at least part of the thermal bodies (11, 21, 31, 41a, 41b) is carried by at least one plate (18, 28), which comprises communication orifices (100) to allow passage of the heat transfer fluid to the heat transfer fluid circuit (410a, 410b).

44. (PREVIOUSLY PRESENTED) The device according to claim 26, wherein the circulating means is at least one of a pump (411a, 411b), a circulator or a thermosiphon.

45. (PREVIOUSLY PRESENTED) The device according to claim 28, wherein the extraction means comprise at least first and second exchangers and the first exchanger is a calorie exchanger (413a) which is connected to the hot circuit (410a) and the second exchangers is a frigorie exchanger (413b) which is connected to the cold circuit (410b).

46. (PREVIOUSLY PRESENTED) The device according to claim 26, wherein reciprocating displacement means is at least one of a motor, a jack, a spring mechanism, an aerogenerator, an electromagnet or a hydrogenerator.

47. (PREVIOUSLY PRESENTED) The device according to claim 26, wherein the device comprises a plurality of thermal flux generation units that are connected one of in series, in parallel or in a series-parallel combination.

48. (CURRENTLY AMENDED) A device for generating a thermal flux with magneto-caloric material (1-4), comprising at least one thermal flux generation unit (10, 30) provided with at least two thermal bodies (11, 21, 31, 41a, 41b), each containing at least one magneto-caloric element (12, 22, 32), magnetic means (103, 203, 303, 403) arranged to emit at least one magnetic field, displacement means coupled to the magnetic means (103, 203, 303, 403) to move the magnetic means (103, 203, 303, 403) relative to the magneto-caloric elements (12, 22, 32) so as to subject the magneto-caloric elements (12, 22, 32) to a magnetic field variation to vary a temperature of the magneto-caloric elements (12, 22, 32), and recuperation means for recuperating calories and frigories emitted by the magneto-caloric elements (12, 22, 32), the displacement means move the magnetic means (103, 203, 303, 403) in a reciprocating motion relative to the magneto-caloric elements (12, 22, 32);

the magnetic means comprises a plurality of magnetic elements (103, 203, 303, 403) that are carried by at least one support (104, 204, 304), which is coupled to the reciprocating displacement means;

the at least one support is essentially rectilinear and defines at least one bar (304) that moves in reciprocating rectilinear translation, the bar (304) carrying the magnetic means (303), the at least two thermal bodies (31) are carried by at least one frame (306) positioned around the bar (304) and are essentially linearly arranged such that the magnetic means (303) freely straddle the at least two thermal bodies (31); and

the magnetic means (303) are positioned in a staggered arrangement on either side of the bar (304) and form two rows, and the frame (306) comprises two series of thermal bodies (31) each of which corresponds to the magnetic means (303) of one of the two rows.

49. (CURRENTLY AMENDED) A device for generating a thermal flux with magneto-caloric material, the device comprising at least one thermal flux generation unit (10, 30) provided with at least two thermal bodies (11, 21, 31, 41a, 41b), each containing at least one magneto-caloric element (12, 22, 32), magnetic mechanism

(103, 203, 303, 403) being arranged for emitting at least one magnetic field, displacement mechanism coupled to the magnetic mechanism (103, 203, 303, 403) for moving the magnetic mechanism (103, 203, 303, 403) relative to the magneto-caloric elements (12, 22, 32) to subject the magneto-caloric elements (12, 22, 32) to a magnetic field variation and vary a temperature the magneto-caloric elements (12, 22, 32), and a recuperation mechanism for recuperating at least one of calories and frigories that are emitted by the magneto-caloric elements (12, 22, 32), the displacement mechanism reciprocating and being arranged for moving the magnetic mechanism (103, 203, 303, 403) relative to the magneto-caloric elements (12, 22, 32) in a reciprocating motion;

the recuperation mechanism comprises at least two heat transfer fluid circuits (410a, 410b), circulating mechanism (411a, 411b) for circulating heat transfer fluid in [[the]] each fluid circuit (410a, 410b) and extraction mechanism (413a, 413b) for extracting the calories and frigories recovered by the heat transfer fluid, [[the]] each fluid circuit (410a, 410b) comprises at least two transfer zones (14) each of which being located immediately adjacent to one of the magneto-caloric elements (12, 22, 32) and arranged so that the heat transfer fluid at least partially recovers the calories and frigories emitted by the corresponding magneto-caloric element (12, 22, 32); and

at least one of the at least two circuits (410a, 410b) being a hot circuit (410a) for the calories and at least one of the at least two circuits (410a, 410b) being a cold circuit (410b) for the frigories, and a commutation mechanism (412) for connecting each of the at least two transfer zones (14) in alternation to one or other of the at least two circuits (410a, 410b), and a synchronization mechanism for synchronizing the reciprocating displacement mechanism with the commutation mechanism (412) such that, depending on the magnetic field to which each magneto-caloric element (12, 22, 32) is subjected, the corresponding transfer zone (14) being connected to one or other of the at least two circuits (410a, 410b).